multi-color dithering software procedure determines a partition $P_j(x,y)$ within which the two-dimensional dither function $G(x,y)$ is situated and selects the primary color $C_j(x,y)$ associated to $P_j(x,y)$ as output color $O(x,y)$.

ABSTRACT

The invention provides a method and apparatus for the reproduction of color images by multi-color dithering. Multi-color dithering is an extension of bi-level dithering for halftoning an input image using as primary colors an arbitrary number of inks. The inks may comprise standard inks or non-standard inks such as non-process color inks, opaque inks, metallic inks, variable color inks and fluorescent inks. Multi-color dithering provides a solution for creating artistic multi-color dithered images, whose screen elements are made of artistic color screen shapes such as micro-letters, symbols and ornaments. When printed at high resolution and at high registration accuracy, multi-color dithering using large dither arrays incorporating artistic dither shapes provides an effective solution for preventing counterfeiting. The use of non-standard inks offers additional protection. Multi-color dithering also offers a solution for printers requiring that all inks are printed side by side, without overlaps.